

# CALFED Bay-Delta Program

## Ecosystem Restoration Program Year 10 Program Plan and Year 10 Annotated Budget (State FYs 2009-10; Federal FY 2010)

### Implementing Agencies:

California Department of Fish & Game  
United States Fish & Wildlife Service  
NOAA's National Marine Fisheries Service

July 1, 2009



## Introduction

This Ecosystem Restoration Program Plan identifies the CALFED Program activities that are scheduled to be accomplished during State Fiscal Year (FY) 2009-2010 and for Federal FY 2010. The Plan also describes progress made to date on the previous year's program plan. As appropriate, the Program Plan and activities will be adjusted during the year to reflect, for example, changes in priorities, funding, policies, or program direction. Public review for the Ecosystem Restoration Program Plan has been received through the California Bay-Delta Ecological Restoration Program website.

[http://nrm.dfg.ca.gov/documents/ContextDocs.aspx?sub=DRERIP\\_Documents\\_Models](http://nrm.dfg.ca.gov/documents/ContextDocs.aspx?sub=DRERIP_Documents_Models)

## Priorities for Year 10 Activities

The program is currently evaluating its priorities based on changing conditions within the Delta and a review of progress and lessons-learned as documented in the program's Milestones and Stage 1 reports.

ERP continued the management of grants for approximately 120 ongoing projects and added approximately 7 more newly funded projects. These projects are continuing to address ERP goals, objectives, and milestones.

ERP is now beginning Stage 2 planning and implementation, with several new projects ready to launch. The Program is preparing a focused PSP for future project funding based on needs identified by the new ERP Performance Monitoring Program, Science Program, Pelagic Organism Decline (POD) working group, and results and recommendations from Stage 1 project monitoring and research.

Program activities in FY 2009-2010 include work in the following areas:

- *Constant Fractional Marking Program for Central Valley Chinook Salmon.* The Constant Fractional Marking/Tagging (CFM) Program provides CALFED with the specific information needed to evaluate Ecosystem Restoration Program Plan (ERPP) actions and goals related to improving conditions for Central Valley Chinook salmon. Specifically, the program provides CALFED the basis for (i) evaluating and revising Central Valley salmon hatchery operations, (ii) tracking restoration of all races of Chinook salmon, (iii) tracking whether CALFED targets for population restoration of Chinook salmon are being reached, and (iv) evaluating effects of harvest. It also provides valuable information to several recovery planning activities.
- *Non-Native Invasive Species Program.* The Non-Native Invasive Species (NIS) Program will continue to focus on implementing the NIS Strategic Plan. Work will continue toward the three stated goals of the NIS Program. The three goals relate to 1) preventing new introductions; 2) limiting the spread or eliminating populations of NIS; and 3) reducing the harmful ecological, economical, social and public health impacts resulting from infestations of NIS. Actions for quantifying milestones and evaluating progress toward these milestones are underway. The NIS Program is providing technical assistance and coordination to regional efforts and watershed groups focusing on assessment and monitoring for NIS to improve rapid response to new invasions. The program is also active with other partners to achieve research and technology transfer. One example is Hazard Analysis and Critical Control Point (HACCP) training that will be provided so implementation and monitoring projects can create HACCP plans to minimize the spread of NIS. Another product involving the transfer of technology is the developing and maintaining of an aquatic NIS reference collection. Corresponding to this reference collection, a list of taxonomic experts will be maintained and updated as needed. The NIS program will

continue working with the results from ERP funded research, technical assistance, and implementation and restoration projects and working with state agencies to implement California's Aquatic Nuisance Species Management Plan.

- *Contaminants and Water Quality.* The CALFED ERP's Water Quality Program (WQP) goal is to improve Delta water quality for all uses: in-Delta agricultural use, drinking water, and environmental water uses. The CALFED WQP has primarily focused on the use of Delta water for drinking and, to some degree, for agricultural use. The ERP's water quality program has a broader focus on environmental water quality, primarily the needs of Central Valley fish and wildlife species. The ERP has funded efforts to increase dissolved oxygen in the Stockton Deepwater Ship Channel, research on mercury cycling and transport, particularly in managed wetlands, and projects related to pesticides and legacy contaminants.
- *Bay-Delta Conservation Plan.* The purpose of the Bay Delta Conservation Plan (BDCP) is to create a stable regulatory framework to conserve and recover at-risk native species and natural communities in the Delta and provide water supply reliability. A joint Habitat Conservation Plan/Natural Community Conservation Plan is being developed through a collaborative process with water users, state and federal agencies, and non-governmental organizations. The BDCP will examine how to improve the design and operation of the State and Federal Water Projects over both the short term and the long term and implement a major program for restoring and managing habitats within the Delta. The final EIS/EIR and endangered species permits are expected to be completed by the end of 2010. The ERP will continue to provide technical staff support to the BDCP, which will in turn, help to ensure consistency between BDCP and ERP planning activities.
- *Adaptive Management Planning Team.* The Adaptive Management Planning Team (AMPT) is completing development of the species, habitats, stressors, and ecological processes conceptual models for the ERP. The ERP also developed a draft Conservation Strategy with a graphical component to provide a common vision for all planning efforts in the Delta. Through new information and findings, restoration actions will be evaluated and revised through the AMPT and conceptual models, which will ultimately lead to update the Conservation Strategy. While efforts have been proceeding on parallel tracks because of varying needs, interests and processes, we plan on joining them together to develop one, congruous conservation plan for Delta restoration now that the models are nearing completion. The AMPT will also work on additional models as needed to evaluate restoration actions at the landscape level for multiple species.
- *Performance Measures.* The ERP Subgroup for Performance Measures is continuing to work with CALFED Performance Monitoring and Tracking staff and the Science Program to complete Phase 2 of the Performance Measures development process. ERP staff are coordinating with Performance Monitoring and Tracking staff to define a revised process for Phase 2, and are anticipating additional assistance from the Science Program to complete Phase 2 tasks. The Subgroup has developed a subset of species for which initial performance measures will be identified during Phase 1, comprised of Delta smelt, spring-run Chinook salmon, and Lange's metalmark butterfly. The AMPT models, which are currently undergoing collegial peer review, will identify stressors, drivers, and other variables that will serve as possible performance measures for further analysis. Secondary analysis will include an evaluation of feasibility, budgeting constraints, etc. A preliminary monitoring plan will then be developed and distributed for peer review. At the same time, this effort is being coordinated with the Delta Vision, Delta Risk Management Strategy, and BDCP in order to reduce duplication of effort and increase utility of the performance monitoring efforts between planning efforts. ERP Implementing Agency staff are currently compiling existing performance monitoring data in order to evaluate its applicability to current scientific and programmatic needs, and will be reviewing key monitoring

programs for appropriate changes necessary to meet newly identified monitoring needs for variables identified in the DRERIP models. DFG performance monitoring staff are currently developing performance measures and are coordinating with the Science Program to integrate performance measures with a broad-based monitoring program for CALFED objectives.

- *CALFED Ecosystem Restoration Program's 2009 Proposal Solicitation Package (PSP)*. ERP is preparing a FY 2009-2010 focused solicitation package to address priority restoration activities identified in the ERP Conservation Strategy. The focus will be on the Delta and at-risk native species that use the Delta, particularly the species noted as pelagic organisms in decline (POD).

## Year 9 Accomplishments and Projected Year 10 Activities

The ERP has over 85 ongoing major activities. Some new activities began in Year 9, while several others were projected to start during Year 9, but were postponed to Year 10 or later, depending upon available funding. More than 500 projects that are in various stages of completion were funded before Year 9; this report does not address all of these projects.

- *Delta Historical Ecology Study*. An introduction to the Delta Historical Ecology Study was presented at the CALFED Science Conference in October, 2009. More information on the study can be found at the SFEI website: <http://www.sfei.org/HEP/DeltaHEStudy/>.
- *Coleman Barrier Weir*. The U. S. Bureau of Reclamation (USBR) and the U.S. Fish and Wildlife Service (FWS) completed an important fish ladder and barrier weir project at the Coleman National Fish Hatchery in Anderson, the largest salmon hatchery outside of Alaska. The ladder and barrier weir will improve fish passage on Battle Creek, a tributary of the Sacramento River. The structures should contribute to the success of the Battle Creek Salmon and Steelhead Restoration Project, which is working to improve fish passage and habitat in the upstream reaches of Battle Creek.
- *Battle Creek Salmon and Steelhead Restoration Project*. The CALFED Ecosystem Restoration Program (ERP) contributed \$26.4 million to the Battle Creek Salmon and Steelhead Restoration Project in 2008. Several hydroelectric dams are planned for removal and are anticipated to contribute significantly to an increase in salmon runs. Other partners in the Restoration Project include the Battle Creek Working Group and the Battle Creek Watershed Conservancy; U.S. Bureau of Reclamation (USBR); U.S. Fish and Wildlife Service (USFWS); National Marine Fisheries Service (NMFS); and California Department of Fish and Game (DFG). The Restoration Project will be among the largest cold water anadromous fish restoration efforts in North America and will restore approximately 42 miles of habitat in Battle Creek and an additional six miles of habitat in its tributaries. It will also help restore critically imperiled winter-run and spring-run chinook salmon and Central Valley steelhead.
- *ERP Conservation Strategy*. ERP implementing agencies completed the first draft of the Conservation Strategy for CALFED Stage 2 Implementation: Sacramento-San Joaquin Delta and Suisun Marsh and Bay Planning Area. The Conservation Strategy includes actions detailed in existing recovery plans and provides a focus on habitat restoration and actions that could restore much of the historical ecological processes that enhance fishery productivity within the Delta. The next step is to complete a comprehensive conservation strategy for the Sacramento and San Joaquin River Ecological Management Zones. ERP coordinated with Delta Vision and the Delta Risk Management Strategy (DRMS) efforts when considering ecosystem priorities during the development of the Conservation Strategy. The latest draft of the Conservation Strategy can be found at: <http://www.dfg.ca.gov/water/>.

*Delta Regional Ecosystem Restoration Implementation Plan (DRERIP)*. Several DRERIP Conceptual Models including one Species Model and nine Eco-Models were completed, and several other models are in various stages of the peer review process. Completed models are now being used to review conservation activities proposed for the Bay-Delta Conservation Plan. [http://nrm.dfg.ca.gov/documents/ContextDocs.aspx?sub=DRERIP\\_Documents\\_Models](http://nrm.dfg.ca.gov/documents/ContextDocs.aspx?sub=DRERIP_Documents_Models)

- *Bay Delta Conservation Plan (BDCP)*. ERP agencies coordinated with the Bay-Delta Conservation Plan (BDCP) process to assure consistency with the CALFED ERP Conservation Strategy. BDCP is a planning and environmental permitting process to restore habitat for Delta fisheries in a way that reliably delivers water supplies to 25 million Californians. Federal and state agencies, environmental organizations, fishery agencies, water agencies and other organizations are working together on the plan. The process began in 2006 and core elements of the draft conservation strategy were available by late 2008. A draft EIS/EIR is scheduled for public review and comment by late 2009. During 2008, the BDCP Steering Committee focused on:
  - Developing biological goals and objectives;
  - Identifying existing ecological conditions;
  - Identifying habitat restoration and conservation actions;
  - Analyzing different water conveyance approaches;
  - Selecting appropriate methods for scientific analysis;
  - Addressing in-Delta water quality;
  - Creating an organizational structure for plan implementation; and
  - Developing an adaptive management and monitoring program.
- Core elements of a draft conservation strategy were available by late 2008, with a draft of the full plan expected by mid-2009. A draft EIR/EIS is expected to be available for public review by late 2009 and the BDCP Steering Committee anticipates that the BDCP will be approved and a permit decision made by the end of 2010.
- Continued the management of grants for approximately 120 ongoing projects and added approximately seven more newly funded projects. These projects are continuing to address ERP goals, objectives and milestones.
- *Mechanistic models*. Ten Mechanistic models were developed to evaluate flow, sediment transport and other fluvial processes to improve ecological function, native habitats and species in the Bay-Delta ecosystem. Studies continue to identify how the Sacramento River's current flow regime (i.e. flow magnitude, timing, duration and frequency) and management actions influence habitats, species and hydrogeomorphic processes.
- *San Joaquin River Restoration*. Restoration efforts along the San Joaquin River included constructing setback levees within the floodplain easements. The project restored natural riparian wetlands to reduce sediment input. Land acquisitions along the lower San Joaquin River floodplains provided protection and enhancement of the flood protection corridor while providing seasonal habitat for listed fish species.
- *ERP Stage 1 Assessment Report*. Completed the ERP Stage 1 Assessment Report. This document will be found on the ERP webpage at [http://www.delta.dfg.ca.gov/erp/reports\\_docs.asp](http://www.delta.dfg.ca.gov/erp/reports_docs.asp).

Table 1 lists Year 9 Activities funded in Year 9 and proposed for Year 10. The activities listed in Table 1 describe actions ERP Implementing Agencies believe are the highest priority to maintain the Conservation Agreement's regulatory commitments. Therefore, the priorities described in this program plan are focused on specific actions accomplished in Year 9 and projected for Year 10. The ERP Implementing Agencies relied on the ERP Strategic Plan, the ERP Draft Stage 1 Implementation Plan, and the ERP Milestones Assessment to develop the list of priority actions for Year 10. These actions were developed and organized to be responsive to POD needs, the CALFED Bay-Delta Program 10-Year Action Plan, Delta

Vision Process, BDCP, the ERP Conservation Strategy for Stage 2 Implementation, the recommendations of the Little Hoover Commission, the contractual process for projects selected through the 2004 Monitoring and Evaluation Proposal Solicitation Process (PSP); and the 2005 Assisting Farmers in Integrating Agricultural Activities with Ecosystem Restoration PSP

Beginning with Year 8, projects were funded under The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Proposition 84). One hundred nineteen million dollars (\$119 million) of Proposition 84 is designated towards expenditures or grants for Ecosystem Restoration Program implementation. Priorities for Proposition 84 funding will include some projects delayed from Year 8 and 9 for various contracting and budgeting reasons. In addition, projects may be chosen through focused project solicitations or Directed Actions. Directed Action project proposals address an urgent or timely issue or unique opportunity in response to immediate ERP priorities. The Directed Action proposal review process evaluates potential ecosystem restoration projects that meet the priorities referenced in CALFED planning documents. Other priorities for Year 10 will be identified during the ERP Planning for CALFED Stage 2 Activities.

At the time of the drafting of this program plan, all bond funded projects have been placed on hold until the bond freeze enacted by the Department of Finance on December 17, 2008 is lifted.

Unless otherwise indicated, the ERP projects and activities listed in Table 1 incorporate:

- **Environmental Review:** CALFED Action Specific Implementation Plan (ASIP), California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), California Endangered Species Act (CESA), and Federal Endangered Species Act (FESA) review and permitting.
- **Public Review.** Each project has been subjected to one or more of these public processes: the PSP, project specific environmental documentation process, the Ecosystem Restoration Subcommittee and Bay-Delta Public Advisory Committee or Subcommittee meetings, and specific workgroup and local stakeholder group meetings (i.e., Yolo Bypass Working Group) or workshops.
- **Science Review.** The ERP strongly emphasizes a science-based approach to ecosystem restoration and continues to integrate science into all program activities including: 1) collaborative actions with CALFED's Science Program; 2) direct involvement of the CALFED Lead Scientist in developing the project proposal review and project selection process; 3) technical and scientific review of project proposals; 4) support of scientific workshops and conferences; and 5) monitoring implementation results from project proposals and their contributions toward achieving the ERP objectives, including the Multi-Species Conservation Strategy (MSCS)/Record of Decision (ROD) milestones; and 6) updating conceptual models with newly developed information to be available for subsequent resource management decisions (adaptive management).
- **Environmental Justice.** Environmental Justice is an important implementation commitment of the ERP. The ERP maintains an extensive list of local agencies, tribes, and nonprofit organizations, including many representing economically disadvantaged communities, local agencies, communities and tribes which are notified when the ERP Implementing Agencies receive proposals within their jurisdictions so they are aware and can provide input if they choose to do so. Their comments are considered in grant recommendations. The ERP holds workshops to explain grant-making guidelines, criteria and processes in communities within its solution area and provides assistance to grant seekers through a toll-free telephone number and on-line materials.

- Farmland Conservation.** The final Programmatic Environmental Impact Statement/Report (2000) for the Farmland Conservation Program outlines potential impacts to agricultural lands resulting from land acquisitions and restoration. Mitigation strategies are outlined in the programmatic environmental document (Section 7.1-2). These strategies include supporting the California Farmland Conservancy program in acquiring easements on agricultural land to prevent its conversion to urbanized uses and increase farm viability. In addition, restoring existing habitat as available would be a priority over converting agricultural land to other more urban uses. Additionally, individual acquisition and/or restoration projects would be subject to environmental review and public comment through the CEQA process where potential impacts to farmlands would be identified and addressed.

**A note about the table format:** The ERP Implementing Agencies chose to use a similar table format as the one used in last year's program plan to display both prior year accomplishments and projected activities in the same table. This allows for an easier comparison and provides more continuity between annual program plans.

**Terms Used in the Table.** One of the challenges of the ERP as a cross-jurisdictional, multi-agency effort is finding and understanding terms used to describe ERP efforts; in some cases terms have a legal or regulatory meaning that is not the intended meaning by the ERP Implementing Agencies in their efforts to describe the ERP's activities. The definitions of the terms used in Table 1 are as follows:

<i>Activity:</i>	Refers to the project title and includes a brief description of the desired outcome from the project.
<i>Year 9 Activities:</i>	Lists the significant accomplishments related to the Activity that happened between July 1, 2008 and June 30, 2009.
<i>Year 10 Activities:</i>	Refers to efforts related to the Activity that are projected to take place between July 1, 2009 and June 30, 2010.
<i>Year 10 Projected Costs:</i>	Refers to the best projection of how much funding will be granted, allocated, contracted, or spent and staff resources allocated between July 1, 2009 and June 30, 2010 for the Activity.
<i>Funding Source:</i>	Lists the source of funding for the Activity, if known; e.g., State, Federal, or Water User.
<i>Agencies:</i>	Agencies or entities that will ensure that the Activity is carried out.
<i>Task Category:</i>	Refers to the category that the Activity represents. There are five task categories: Planning, Research, Implementation, Education, and Monitoring.

**Table 1. Year 9 Activities and Projected Year 10 Activities**

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**Activity:** **Aquatic Restoration Planning and Implementation Section (ARPI)**. ARPI was established in the Department of Water Resources (DWR) to support the ERP by developing habitat enhancement and fish passage improvement in the Yolo Bypass. ARPI collaborates with the Yolo Basin Foundation and other local groups to identify, study, and carry out projects on public or private land with willing participants; these efforts create regionally significant improvements in riparian, tidal marsh, and seasonal floodplain habitats and fish passage in the bypass. This effort is compatible with maintaining or improving seasonal flood flow capacity of the bypass while improving habitat diversity and quality.

**Year 9 Activities:** ARPI provided the engineering and scientific support needed for the highest priorities identified for the ERP. ARPI conducted the following: 1) evaluated fish passage and aquatic habitat, and studied sediment erosion and accretion; 2) developed 1-D and 2-D flow model; 3) conducted flow and stages monitoring; 4) designed potential restoration actions in lower Putah Creek; 5) evaluated Lisbon Weir fish passage improvement options; and 6) evaluated options to integrate bypass-scale restoration into the Sacramento Area Flood Control Agency's Lower Sacramento River Regional Project. The ARPI website for detailed project information is [www.des.water.ca.gov/ecological\\_studies\\_branch/arpi\\_section/index.cfm](http://www.des.water.ca.gov/ecological_studies_branch/arpi_section/index.cfm).

The ERP Implementing Agencies met with ARPI staff to identify high priority needs in the Yolo Bypass, such as assessing sturgeon passage issues, and to articulate how ARPI could assist in addressing those needs. The goal is to develop an annual work plan that could be approved by the ERP Implementing Agency managers.

**Year 9 Cost:** \$1,000,000

**Year 10 Activities:** Continue listed activities.

**Year 10 Projected Cost:** \$1,000,000

**Funding Source:** Prop. 84

**Agencies:** DWR

**Task Category:** Planning and Implementation

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**Activity:** **Assistance to Farmers in Integrating Agricultural Activities with Ecosystem Restoration (AFI)**. ERP's Draft Stage One Implementation Plan established multi-regional priorities for a coordinated ERP effort to support "wildlife friendly agriculture." Chapter 7 of Proposition 50, which provided funds to the ERP, states, "not less than \$20 million shall be allocated for projects that assist farmers in integrating agricultural activities with ecosystem restoration." Funds in this category have been dedicated to focused solicitation and directed actions to implement projects that benefit native fish, giant garter snakes (GGS) and other MSCS species on agricultural lands. In addition, a portion of the funds in this category have been allocated to support technical assistance partnerships to assist landowners in implementing agricultural activities benefiting MSCS wildlife and fish, and provide a linkage between state and federal programs to benefit farmers and wildlife.

**Year 10 Activities:** In addition to Year 8 projects, implement the Selby Creek Stream Habitat Restoration and Riparian Revegetation Project, the Socio-Economic and Behavioral Analysis of Farmers' Decisions to Adopt or Reject the CALFED Conservation Initiatives Project, and the Delta Working Landscapes Project.

**Year 10 Projected Cost:** \$1,450,000

**Funding source:** Prop 50 AFI

**Agencies:** California Department of Food and Agriculture (CDFA), DFG, Department of Conservation (DOC), Natural Resources Conservation Service (NRCS), U.S. Fish and Wildlife Service (USFWS), U.S. Geological Survey (USGS)

**Task Category:** Implementation

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**Activity:** Battle Creek Salmon and Steelhead Restoration Project: The Battle Creek Salmon and Steelhead Restoration Project would restore approximately 42 miles of historical anadromous fish habitat in Battle Creek, and an additional 6 miles of habitat in its tributaries. Components of the project include:

- Removal of 5 diversion dams that would have marginal power production value after their releases are adjusted to meet stream flow needs below the dams,
- Installing fish ladders at 3 diversion dams and screening their associated diversions,
- Increasing flow releases from all remaining diversion dams affecting anadromous fish on Battle Creek,
- Direct connection of powerhouse tailraces to power canals to eliminate redundant screening requirements, flow fluctuations associated with powerhouse operations, and false attraction of returning fish to powerhouse tailraces containing a mixture of waters from different basins.

Phase 1A includes implementation of screens and ladders on 2 diversion dams and removal of 1 dam on North Fork Battle Creek, and modifications to a dam on Baldwin Creek (a tributary to North Fork Battle Creek.) Phase 1B includes the implementation of a bypass and tailrace connector on South Fork Battle Creek. Phase 2 includes all remaining work on South Fork Battle Creek.

**Year 9 Activities:** Continued implementation of Phase 1A.

**Year 9 Cost:** Funded in Year 8 from funding sources listed below and an additional \$ 26,812,500, for Phase 1B (funding sources and implementation timeframe not yet determined).

**Year 10 Activities:** Continue Phase 1A implementation.

**Year 10 Projected Cost:** Funded in Year 9.

**Funding Sources:** CALFED Federal Funds, Iron Mountain Mine Mitigation Federal Funds, DFG State Prop 50 Funds, Wildlife Conservation Board State Prop 50 Funds and Caltrans Benicia-Martinez Bridge and Richmond San Rafael State Mitigation Funds.

**Agencies:** U.S. Bureau of Reclamation (USBR), USFWS, DFG, National Marine Fisheries Service (NMFS)

**Task Category:** Implementation

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**Activity:** Blacklock Restoration Project Monitoring. The 70-acre Blacklock property is being restored to a self-sustaining functioning brackish tidal marsh by restoring tidal action, reversing subsidence, and promoting establishment of native vegetation and a tidal marsh channel network appropriate to this location within the San Francisco Estuary. Monitoring of this site will support multiple positive outcomes. First, it will document the expected beneficial effects of this project. Second, it will inform whether a third breach is needed for the southern part of the site. Third, it will inform design of the next tidal marsh restoration projects in Suisun, identifying effective approaches as well as potential impediments to successful future tidal marsh restoration projects as part of the Suisun Charter Implementation Plan. Finally, it will help evaluate the suitability of future acquisitions for tidal marsh restoration. In this manner, Blacklock monitoring is a component of a larger effort aimed at providing protection and recovery of many species that benefit from tidal marsh in Suisun Marsh.

**Year 10Activities:** Monitoring of levee breach geometry, inundation regime, surface elevation, changes in sedimentation, slough network evolution, native marsh vegetation

**Year 10Cost:** \$382,250

**Funding Source:** Prop 84

**Agencies:** DFG, DWR, USFWS

**Task Category:** Directed Action

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**Activity: CALFED NIS Program (DFG).** DFG will work with the USFWS Non-Native Invasive Species (NIS) Program and Stakeholder Teams to implement and administer the NIS program, as developed and documented in the NIS Strategic and Implementation Plans.

**Year 9 Activities:** Continue implementation of actions described in the State Aquatic Invasive Species Plan and the ERP Multi-year Program Plan. Continue to work on priority terrestrial weed actions in the CALFED area and regulations for restricting the importation of invasive species, and serve as co-chair to the CALFED NIS Advisory Committee.

**Year 9 Cost:** \$100,000

**Year 10 Activities:** Continue Year 9 activities.

**Year 10 Projected Cost:** \$100,000

**Funding Source:** Prop. 84

**Agencies:** DFG

**Task Category:** Implementation

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**Activity: Central Valley Project Improvement Act (CVPIA) Contribution.** According to the ROD, approximately \$15 million of CVPIA restoration funds will be used for the purpose of protecting, restoring, and enhancing special-status species and their habitats in areas directly or indirectly affected by the Central Valley Project. CVPIA programs that contribute to ERP goals and objectives include: Anadromous Fish Restoration Program (AFRP), Dedicated Project Yield, Restoration of Riparian Habitat and Spawning Gravel, Clear Creek Restoration, Anadromous Fish Screen Program (AFSP), & Water Acquisition programs. This Program Plan includes only highlights of CVPIA accomplishments and activities. The AFRP will continue to implement the CVPIA directive to at least double natural production of anadromous fish. To this end, AFRP will work with local watershed groups and other local partners to carry out locally developed and supported watershed restoration plans, giving priority to actions that restore natural channel and riparian habitat values [CVPIA Section 3406 (b)(1)]. The AFSP plans to screen the largest diversions on the Sacramento River as diverters volunteer and funds become available. The AFSP also works to optimize fish screen funds with partnership-based funding from sources such as WCB, DFG, and ERP and local sources. AFSP screens contribute to the "at least doubling" Central Valley anadromous fish populations CVPIA goal; these screens are also important to protect listed and candidate species such as the winter-run and spring-run Chinook salmon, Delta smelt, steelhead trout, and splittail [CVPIA Section 3406(b)(21)]. By the end of 2008, CVPIA will complete a 10-year Program Plan. This Plan serves as a refinement of the previous planning efforts and provides priorities, strategies, and activities to achieve the defined goals set forth in the CVPIA. This Plan provides the background of the implementation of the CVPIA, describes CVPIA goals and accomplishments to date, and sets priorities for the next 10-year planning period from 2009 through 2018.

**Year 9 Activities:** The Restoration of Riparian Habitat and Spawning Gravel project continued with gravel introductions on the American, Sacramento, and Stanislaus Rivers as budget permits. The AFSP conducted a field monitoring and assessment effort of unscreened diversions on the Sacramento River to quantify fish losses at unscreened diversions. More information on these and other CVPIA programs can be found at <http://www.usbr.gov/mp/cvpia/>.

**Year 9 Cost:** \$15,000,000

**Year 10 Activities:** Continue with Year 9 Activities and other CVPIA projects (<http://www.usbr.gov/mp/cvpia/>).

**Year 10 Projected Cost:** \$15,000,000

**Funding Source:** CVPIA Restoration Fund

**Agencies:** USFWS

**Task Category:** Implementation

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**Activity: Complementing Water Planning Efforts for the Delta and Sacramento River: Application of the Ecological Flows Tool.** The purpose of this project is to leverage a recently completed effort, the Sacramento River Ecological Flows Study, by expanding the capability of the developed Sacramento River Ecological Flows Tool (SacEFT) for application to the Delta. This project will conduct a set of refinements to increase the SacEFT's utility, and construct a new Delta ecological flows tool (DeltaEFT) "branch" of the software. Completion of the project is expected to provide the ability to explicitly link upstream (Sacramento River) ecological responses evaluated with SacEFT to ecosystem responses in the Delta evaluated with DeltaEFT.

**Year 9 Activities:** Firstly, a set of focused refinements will be conducted to further increase SacEFT's utility and confidence for water operations analysis on the Sacramento River, such as the inclusion of additional functional linkages for the focal species considered (e.g., Chinook salmon) for a more robust analysis of those targets. Secondly, Delta specific management actions and Delta specific ecological considerations will be added to the software architecture through construction of the Delta ecological flows tool (DeltaEFT) "branch" of the software.

**Year 9 Cost:** \$ 1,715,533

**Funding Source:** Prop 84

**Year 10 Activities:** Continue Year 9 activities.

**Year 10 Projected Cost:** Funded in previous years.

**Agencies:** DFG, The Nature Conservancy

**Task Category:** Planning

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**Activity: Constant Fractional Marking Program for Central Valley Chinook Salmon.** Over 32 million fall-run Chinook salmon are produced each year at hatcheries in California's Central Valley. Annual marking and coded-wire tagging of hatchery production release fall-run Chinook salmon is needed on a long-term basis to meet the needs for 1) monitoring and evaluation of the hatchery programs' genetic and ecological effects on natural populations; 2) estimation of exploitation rates in ocean and inland fisheries; 3) evaluation of the impacts of straying on natural populations; and 4) evaluation of the benefits of restoration actions designed to restore natural populations.

**Year 10 Activities:** 1) Ocean Harvest Sampling – 80 additional personnel months of Scientific Aide time per year will be needed to complete the recovery of coded-wire tags (CWTs) in the private recreational skiff and recreational charter fisheries, from Crescent City to Avila Beach ports. In addition, 54 additional personnel months of Scientific Aide time per year will be needed to complete the recovery of CWTs from the commercial troll fishery, from Crescent City to Avila Beach ports. One Associate Biologist will supervise the CWT recovery program in the ocean fisheries. 2) Coded-wire Tag Processing Laboratory – Increase staffing levels and provide improved equipment for a modernized coded-wire tag processing laboratory, which will meet the Central Valley CWT processing needs. 3) Age Determination – The age structure of Central Valley Chinook salmon populations will be determined by scale analysis. This project may be subject to delays resulting from regulatory changes in commercial and recreational harvests

**Year 10 Projected Cost:** \$1,025,777 **Funding Source:** Prop 84

**Agencies:** DFG

**Task Category:** Research

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**Activity:** Contract Management Services. Contract management services to the CALFED Ecosystem Restoration Program for ecosystem restoration projects selected through the 2004 and 2005 ERP Proposal Solicitations, the Directed Action process, and ongoing projects currently managed by GCAP Services, Inc.

**Year 9 Activities:** GCAP provided overall contract management and administrative oversight services to grant recipients of Proposition 13, 204, 50, and 84 funds for the CALFED Ecosystem Restoration Program. GCAP ensured that individual recipient agreements and deliverables are successfully completed consistent with the scope of work, project schedule, and budget as approved by the CALFED Ecosystem Restoration Program.

**Year 9 Cost:** \$386,346

**Year 10 Activities:** Continue ongoing activities.

**Year 10 Projected Cost:** TBD upon contractor selection and final contract execution.

**Funding Source:** Prop 84

**Agencies:** DFG

**Task Category:** All

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**Activity:** Cow Creek Fish Passage and Flow Improvement Project. The Cow Creek Fish Passage and Flow Improvement Project-Modification of the Millville Diversion Dam (Project) includes removal of the fish passage barriers associated with the Millville Diversion Dam on Clover Creek, tributary of Cow Creek in Shasta County. Once removed, approximately ten miles of spawning habitat to anadromous salmonids will be made available.

**Year 10 Activities:** Remove the dam and siphon structure, opening up ten miles of potential habitat for anadromous salmonids and, in the process, be an outreach and education tool to work with other landowners and encourage their participation in removing and/or modifying other diversion dams in the Cow Creek watershed.

**Year 10 Projected Cost:** \$2,500,000

**Funding Source:** Prop 84

**Agencies:** Western Shasta RCD

**Task Category:** Implementation

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**Activity:** Ecosystem Restoration Program Database Development, Management and Integration. This agreement will allow the Contractor to assist the DFG, NOAA Fisheries, U.S. Fish and Wildlife Service, and the CALFED Bay-Delta Program with effectively monitoring restoration projects, conducting research associated with implementation to support the adaptive management process, tracking the success of approved restoration projects, and assist with the final review being conducted by the Department of Finance.

**Year 9 Activities:** ERP Database development, SQL Server Administration, Data Support, Data Delivery, Management, Administration and Coordination.

**Year 9 Cost:** Funded in Year 8

**Year 10 Activities:** Continue with ongoing activities.

**Year 10 Projected Cost:** Funded in Year 8

**Funding Source:** Prop 50

**Agencies:** Pacific States Marine Fisheries Commission

**Task Category:** Implementation - DFG Implementation and Program Support

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**Activity: ERP Implementation Staff.** Provides staff to assist in implementing the ERP grant management program, coordinate AFRP activities with the ERP, support regional planning, prepare and maintain regional ERP implementation plans, support ongoing implementation activities, and coordinate ERP implementation with other restoration activities such as CVPIA.

**Year 9 Activities:** ERP grant management.

**Year 9 Cost:** 7,688,983

**Year 10 Activities:** In addition to activities mentioned above, develop CALFED ERP's 2009 Proposal Solicitation Package. The focused solicitation package will address priority restoration activities identified in the ERP Conservation Strategy. The focus will be on the Delta and at-risk native species that use the Delta.

**Year 10 Projected Cost:** \$4,100,000

**Funding Source:** Prop. 84

**Agencies:** DFG

**Task Category:** Planning and Implementation

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**Activity: Fish and Wildlife Planning.** USFWS, as an ERP Implementing Agency, will continue ERP planning efforts in collaboration with NMFS, CDFG, and CBDA. Comprehensive efforts are currently underway to develop regional ecosystem restoration plans for areas such as Suisun Marsh and the Delta. USFWS, through an interagency process, is also involved in planning and developing the format and guidelines for preparing Action Specific Implementation Plans (ASIPs) for all CALFED projects in order to meet the requirement of FESA, CESA, and NCCPA. USFWS will continue planning efforts regarding the ERP PSP process. The USFWS continues to manage existing CALFED contracts that meet ERP goals and objectives. USFWS will continue efforts for the annual milestones assessments and other annual reporting requirements including the Multi-Year Program Plan.

**Year 9 Activities:** ERP planning and implementation efforts, included: 1) Conservation Plans for CALFED Program; 2) ERP performance measures; 3) Annual Program Plan; 4) CALFED Program environmental compliance needs; 5) BDPAC ERP Subcommittee; 6) ERP contract review; 7) AMPT and DRERIP; and 8) Other CALFED elements, such as Watershed Management and the Science Program.

**Year 9 Cost:** \$1,292,000

**Year 10 Activities:** USFWS will continue with ERP planning and implementation efforts.

**Year 10 Projected Cost:** \$1,292,000

**Funding Source:** Federal

**Agencies:** USFWS

**Task Category:** Planning

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**Activity: Fish Passage Improvement Program (FPIP) Staff.** The Fish Passage Improvement Program (FPIP) team studies and evaluates constructed structures that impede anadromous fish migration and assists with engineering and environmental evaluations for migration barrier structure removal or modification within the ERP focus area. The FPIP team is guided by an annual work plan developed by an Interagency Review Team (IRT) that includes representatives from the ERP Implementing Agencies and FPIP and approved by the ERP Implementing Agency managers. The work plan identifies and addresses high priority fish passage issues and other engineering support requirements for ecosystem restoration that may be highlighted in ERP regional restoration plans.

**Year 9 Activities:** Supported FPIP staff conducting FPIP studies.

**Year 9 Cost:** \$1,000,000

**Year 10 Activities:** Continue existing activities.

**Year 10 Projected Cost:** \$1,000,000

**Funding Source:** Prop. 50, Prop. 84

**Agencies:** DWR

**Task Category:** Planning

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**Activity:** Genetic/Scale Tissue Archive. Funding for continued development and coordination of historic Central Valley salmonid genetics/scale tissue archive and database. Historic scale/tissue collections in Arcata, Fresno, Red Bluff, and other locations will be cataloged, entered into a database, and made part of the existing DFG Central Valley genetics tissue archive. Collections will be provided for research purposes according to standard protocols.

**Year 9 Activities:** Continued work on the following: 1) support genetic monitoring at state and federal fish facilities; 2) identify spring run species; 3) Central Valley-wide survey of Chinook salmon; 4) Tissue and scale collections at fish hatcheries; and 5) support comprehensive steelhead monitoring program.

**Year 9 Cost:** \$344,000

**Year 10 Activities:** Continue existing activities listed above.

**Year 10 Projected Cost:** \$344,000

**Funding Source:** Prop. 50, Prop. 84

**Funding Source:** Prop 50

**Agencies:** DFG

**Task Category:** Implementation

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**Activity:** Hill Slough West Restoration Project, Phase I - Preliminary Restoration Design, Environmental Documentation and Permitting. This project will restore tidal habitat to approximately 950 acres of diked seasonal wetlands in Suisun Marsh referred to as Hill Slough. The project will re-introduce tidal action to the site, restoring a transition of perennial aquatic habitat in the deepest areas, to high and low intertidal marsh, and lowland alluvial habitat at higher elevations. The outcome will be a self-sustaining marsh ecosystem created through restoration of natural hydrologic and sedimentation processes and reliance on natural abiotic and biological succession processes. This will contribute to CALFED's ERPP goal of restoring 5,000-7,000 acres of tidal wetlands in Suisun Marsh.

**Year 9 Activities:** Phase 1. Preliminary Restoration Design, Environmental Documentation, and Permitting. This phase includes preparation of the preliminary restoration design and plan, as well as an interpretive program, environmental documents, and permits

**Year 9 Costs:** \$ 553,141.60

**Year 10 Activities:** Continue Year 9 activities.

**Year 10 Projected Costs:** Funded in Year 9.

**Funding Source:** Prop. 84

**Agencies:** California Wildlife Foundation, DFG

**Task Category:** Implementation

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**Activity: Meridian Farms Water Company Fish Screen Project - Construction Phase 1.** Construction of the Meridian Farms Water Company (MFWC) Fish Screen project on the Sacramento River. The primary purpose of the project is to prevent entrainment of at-risk native fish species by installing a positive barrier fish screen at one of MFWC's existing intake facilities. The existing diversion at Grimes would be removed, repositioned, and rebuilt with the addition of state-of-the-art fish screens and conveyance system improvements. The U.S. Bureau of Reclamation's AFSP is funding this project at 50% cost-share (\$2.5 million).

**Year 9 Activities:** Commenced implementation of Phase 1 which consists of the following components:

- Grimes Diversion/Pumping Plant: A 30 cfs diversion with fish screen and pumping plant located north of the existing Grimes Diversion. The existing Grimes Diversion will be demolished.
- Grimes Pipeline/Canal: The Grimes Pipeline /Canal is approximately 650 lineal feet of 36-inch diameter pipeline, approximately 3,800 lineal feet of modifying existing earthen canal embankment, and associated work.
- Drexler Pipeline: Approximately 2,000 lineal feet and up to 6,500 lineal feet of 36-inch diameter pipeline, length to be dependant upon available funds, canal and, turnout structure that will deliver irrigation flows from the Drexler Diversion to the Drexler service area.

**Year 9 Cost:** \$2,500,000

**Year 10 Activities:** Continue Year 9 activities.

**Year 10 Projected Cost:** Funded in Year 9

**Funding Source:** Prop 84

**Agencies:** USBR, DFG

**Task Category:** Implementation

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**Activity: Performance Measures and Monitoring Staff.** Provides four permanent positions to fulfill the legal mandate to monitor and evaluate program performance by developing ERP indicators and performance measures, including methods to meet regulatory compliance mandates for managed and restored wetlands.

**Year 9 Activities:** Performance measure development in coordination with the Science Program to integrate performance measures with a broad-based monitoring program for CALFED objectives.

**Year 9 Cost:** \$1,700,000

**Year 10 Activities:** Continue Year 9 activities.

**Year 10 Projected Cost:** \$1,700,000

**Funding Source:** Prop 84

**Agencies:** DFG

**Task Category:** Monitoring and Research

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**Activity: Peterson Ranch Acquisition and Planning.** Fee title acquisition of 1,600 acres in the Lindsey Slough area, known as the Peterson Ranch, located adjacent to Calhoun Cut Ecological Reserve (CCER). The biological values and proximity to Lindsey Slough and CCER make this a high-priority acquisition. In addition, this project would complete planning and restoration design efforts in the Calhoun Cut restoration (related to ERP-02D-P54). This project would bring the planning and permitting efforts in the Lindsey Slough restoration project to completion.

**Year 10 Activities:** Fee title acquisition Peterson property and development costs. Prepare Peterson Baseline Biological Assessment and Management Plan. Complete Restoration Design for Lindsey Slough project and Peterson acquisition. Complete environmental Review and permitting for Lindsey restoration.

**Year 10 Projected Cost:** \$5,989,534

**Funding Source:** Prop 84

**Agencies:** DFG, Solano Land Trust

**Task Category:** Implementation

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**Activity:** Restoration, Screens, etc. NMFS' supports the ERP goals and efforts by providing expertise regarding instream and floodplain restoration activities and fish screen projects.

**Year 9 Activities:** Supported restoration and fish screen project activities.

**Year 9 Cost:** \$800,000

**Year 10 Activities:** Continue Year 8 activities.

**Year 10 Projected Cost:** \$800,000

**Funding Source:** Federal

**Agencies:** NMFS

**Task Category:** Planning

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**Activity:** UCD Project Review Office Services. Contract with UC Davis to provide support in technical and peer reviews, workshops, training, and other relevant activities.

**Year 10 Activities:** Provided: 1) management of technical peer reviews of ERP projects, proposals, reports, conceptual models, and other work products; 2) coordination and facilitation of meetings, workshops, conferences, and related events; 3) development of training courses to address specific needs of the ERP; 4) development of seminar speaker series in subjects of concern to ERP; 5) development of white papers and other informational documents; 6) technical writing and editing; 7) development and maintenance of data management and web-based information systems; and 8) CALFED ERP's 2009 Proposal Solicitation Package support.

**Year 10 Projected Cost:** \$3,000,000

**Funding Source:** Prop. 84

**Agencies:** UCD

**Task Category:** Planning and Implementation

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**Activity:** Wildlife and Vegetation Response to Experimental and Restoration of Flooded Riparian Forest Habitat for The Cosumnes River Preserve. The Wildlife and Vegetation Response to Experimental and Restoration of Flooded Riparian Forest Habitat for the Cosumnes River Preserve Project includes the following long-term goals: 1) use engineered levee breaches and grading to restore an active and regular flooding regime to the Oneto Horseshoe and Denier II properties (owned and managed by DFG and TNC) within the Cosumnes River Preserve; 2) restore approximately 600 acres of flooded riparian forest habitat using a combination of horticultural restoration and natural process restoration techniques where possible, each carried out in a controlled experimental context; 3) measure wildlife and plant community response to the habitat restoration treatments; 4) monitor changes in surface and ground water hydrology; and 5) monitor geomorphic changes occurring throughout the restored site using remote sensing techniques. Moreover, this restoration and monitoring project will be one of the first such projects to enumerate changes in Bay-Delta ecosystem services, specifically groundwater recharge, soil carbon storage, and flood abatement, from floodplain reconnection.

**Year 10 Activities:** Activities to commence in Year 10.

**Year 10 Projected Cost:** \$9,440,813

**Funding Source:** Prop 84

**Agencies:** DFG, The Nature Conservancy

**Task Category:** Implementation

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**Activity:** Wildlife Conservation Board ERP Acquisitions.

**Year 9 Activities:** Support for acquisitions.

**Year 9 Cost:** \$100,000

**Year 10 Activities:** Support for acquisitions.

**Year 10 Projected Cost:** \$100,000 **Funding Source:** Prop 84

**Agencies:** WCB

**Task Category:** Implementation

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**Activity: Yolo Bypass Strategic Plan Support.** Collaborative process to resolve Lower Yolo Bypass management concerns. Using a consensus-seeking, formal collaborative process, facilitated by the Center for Collaborative Policy, local stakeholders will develop their recommendations regarding future management, actions, responsibilities, oversight, monitoring, public access, potential liabilities, funding and regulatory needs of the Lower Yolo Bypass. Participants will include local landowners, reclamation districts, and local, state, and federal agencies. This effort will be closely collaborated with the monitoring and research conducted under the Liberty Island Restoration Monitoring project in order improve the collective understanding regarding any technical issues associated with land use, long-term management, or conservation of the lower bypass.

**Year 9 Activities:** Work with the project proponents to ensure the project scope includes the coordination and collaboration necessary to take advantage of previous and current investments in the Lower Bypass in order to ensure the most current available information is being used in the discussions.

**Year 9 Cost:** \$300,000

**Year 10 Activities:** Continue Year 9 activities.

**Year 10 Projected Cost:** funded in Year 9

**Funding Source:** Prop 84

**Agencies:** DFG, NMFS, USFWS, Delta Protection Commission, Yolo Basin Foundation

**Task Category:** Planning

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Table 2 lists the types and number of projects funded by the ERP through Year 9. Specific information about any specific project may be found at the ERP website: <http://nrm.dfg.ca.gov/ERP/projects.aspx>

**Table 2. Types and Number of Restoration Projects Funded by ERP Through Year 9**

Type of Restoration Project	Amount Approved	Project Count
Riparian Habitat	\$156,670,450.41	79
Fish Screens	\$139,734,923.28	68
Ecosystem Water and Sediment Quality	\$93,038,089.15	97
Hydrodynamics, Sediment Transport, and Flow Regimes	\$70,901,413.62	42
Upland Habitat and Wildlife Friendly Agriculture	\$38,871,142.18	4
Local Watershed Stewardship	\$33,450,622.23	75
Shallow Water and Marsh Habitat	\$26,661,681.97	37
At-Risk Species Assessment	\$25,954,677.08	27
Non-Native Invasive Species	\$24,933,914.41	18
Administrative or Program Support	\$20,386,435.00	17
Harvestable Species Assessment	\$17,958,477.74	28
Fish Passage	\$8,753,087.24	5
Environmental Education	\$5,363,590.06	28
Environmental Water Management	\$5,348,182.00	62
Lowland Floodplains and Bypasses	\$4,796,428.00	4
River Channel Restoration	\$3,473,610.00	2
Estuary Foodweb Productivity	\$1,239,240.00	2
Technical Support	\$910,579.29	4